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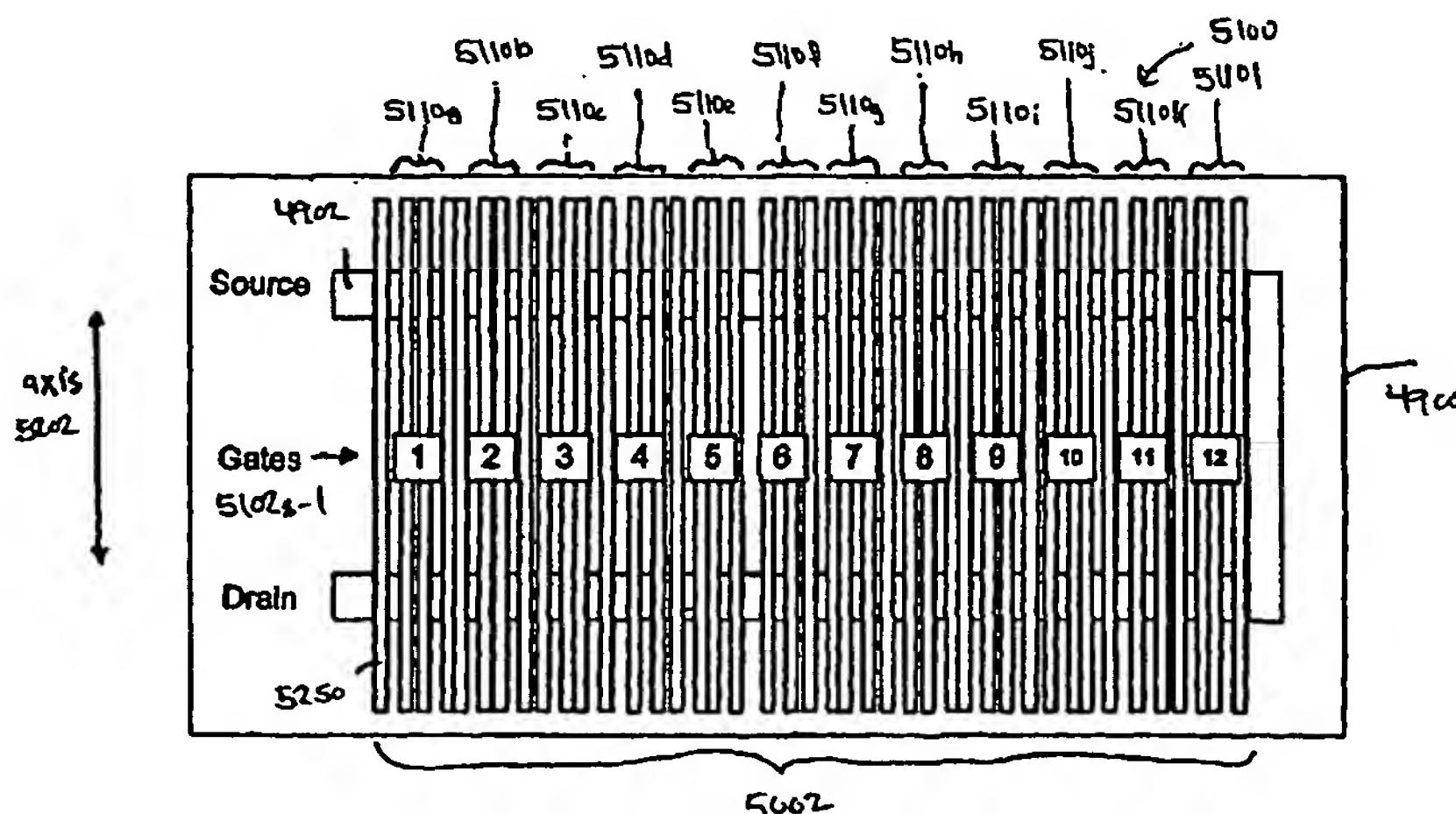
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(54) Title: APPLICATIONS OF NANO-ENABLED LARGE AREA MACROELECTRONIC SUBSTRATES INCORPORATING NANOWIRES AND NANOWIRE COMPOSITES



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(57) **Abstract:** Macroelectronic substrate materials incorporating nanowires are described. These are used to provide underlying electronic elements (e.g., transistors and the like) for a variety of different applications. Methods for making the macroelectronic substrate materials are disclosed. One application is for transmission and reception of RF signals in small, lightweight sensors. Such sensors can be configured in a distributed sensor network to provide security monitoring. Furthermore, a method and apparatus for a radio frequency identification (RFID) tag is described. The RFID tag includes an antenna and a beam-steering array. The beam-steering array includes a plurality of tunable elements. A method and apparatus for an acoustic cancellation device and for an adjustable phase shifter that are enabled by nanowires are also described.